

Listing of the Claims

The following is a detailed listing of all claims that are, or were, pending in the present application.

1. (Currently amended) An audiometric apparatus for testing hearing, comprising:
stimulus generating means for transmitting at least one true random stimulus sequence to a subject's inner ear; and
detection means for detecting ~~the a~~ response signal returned from the subject's inner ear in response to said stimulus sequence, wherein the at least one true random stimulus sequence comprises at least one signal devoid of a definitive relationship with time.
2. (Original) The audiometric device of Claim 1, wherein said apparatus includes analyzer means for controlling the stimulus generating means and analyzing said response signal.
3. (Currently amended) An audiometric apparatus for testing hearing, comprising:
stimulus generating means for transmitting at least one stimulus sequence to a subject's inner ear; and
sampling means for detecting ~~the a~~ response signal returned from the subject's inner ear in response to said stimulus sequence, said response signal having at least a first waveform, said sampling means including waveform reconstruction means for reconstructing said first waveform, said reconstruction means including means for applying a plurality of true random frequencies to said response signal.
4. (Original) The audiometric device of Claim 3, wherein said apparatus includes analyzer means for controlling said sampling means.
5. (Original) The audiometric device of Claim 4, wherein said analyzer means includes means for analyzing said first waveform.
6. (Currently amended) An audiometric apparatus for testing hearing, comprising:
stimulus generating means for transmitting at least one stimulus sequence to subject's inner ear; and

sampling means for detecting the a response signal returned from the subject's inner ear in response to said stimulus sequence, said response signal having at least first and second waveforms, said first waveform comprising a true response signal, said second waveform comprising a noise signal, said sampling means including waveform reconstruction means for reconstructing said waveform, said reconstruction means including means for applying a plurality of true random frequencies to said first and second waveforms whereby data substantially reflective of said waveform is acquired.

7. (Currently amended) An audiometric device for testing hearing, comprising:
stimulus generating means for transmitting at least one true random sequence to a subject's inner ear; and

sampling means for detecting the a response signal returned from the subject's inner ear in response to said stimulus sequence, said response signal having at least a first waveform, said sampling means including means for applying a plurality of true random frequencies to said response signal to reconstruct said first waveform.

8. (Original) The apparatus of Claim 7, wherein said apparatus includes analyzer means for controlling the stimulus generating means.

9. (Original) The apparatus of Claim 8, wherein said analyzer means includes means for controlling said sampling means.

10 (Currently amended) A method of testing the hearing of a subject, comprising the steps of:

generation a plurality of randomly spaced digital pulses;
dividing said plurality of randomly spaced digital pulses by a lower frequency set of randomly spaced digital pulses to yield a true random stimulus;
presenting the at least one true random stimulus sequence to said subject's inner ear; and

detecting the a response signal returned from the subject's inner ear in response to said stimulus sequence.

11. (Original) The method of Claim 10, wherein a plurality of said true random stimulus sequence is presented to said subject's ear.

12. (Currently amended) A method of testing the hearing of a subject, comprising the steps of:

presenting at least one stimulus sequence to said subject's inner ear;

detecting ~~the a~~ response signal returned from the subject's inner ear in response to said stimulus sequence, said response signal having at least one waveform;

sampling said response signal waveform by applying a plurality of true random frequencies to said response signal, said sampling providing at least a first set of response signal data;

recording said first set of response signal data; and

reconstructing said response signal waveform from said first set of response signal data.

13. (Currently amended) A method of testing the hearing of a subject, comprising the steps of:

presenting at least one true random stimulus sequence to said subject's inner ear;

detecting ~~the a~~ response signal returned from the subject's inner ear in response to said stimulus sequence, said response signal having at least one waveform;

sampling said response signal waveform by applying a plurality of true random frequencies to said response signal, said sampling providing at least a first set of response signal data;

recording said first set of response signal data; and

reconstructing said response signal waveform from said first set of response signal data.

14. (Currently amended) A method of testing the hearing of a subject, comprising the steps of:

generating a true random stimulus proportionate to a temperature of a stimulus generation means;

detecting ~~the a~~ response signal returned from the subject's inner ear in response to said stimulus sequence.

15. (Currently Amended) An audiometric apparatus for testing hearing, comprising:
 - a stimulus signal generator generating an electrical stimulus signal coupled with a transducer receiving the generated electrical stimulus signal, the transducer disposed on or within an earpiece and generating a first sound wave from said electrical stimulus signal for introduction into an ear canal of a subject to be tested;
 - a detector including a microphone disposed on or within said earpiece for receiving a second sound wave reflected from the inner ear of the subject in response to the first sound wave and generating a response electrical signal from the reflected second sound wave;
 - at least one signal conditioning circuit, including at least one signal conditioning filter and amplifier receiving the electrical response signal and generating a conditioned output signal; and
 - a computer receiving said conditioned output signal and operative to analyze said conditioned output signal including generating at least one response signal waveform, wherein the electrical stimulus signal comprises at least one signal devoid of a definitive relationship with time.
16. (Previously Presented) The audiometric apparatus of Claim 15, wherein the computer is further operative to control the stimulus signal generator.
17. (Previously Presented) The audiometric apparatus of Claim 15, wherein the stimulus signal generator generates true random sequences which are devoid of a definitive pattern or relationship with time.
18. (Previously Presented) The audiometric apparatus of Claim 15, wherein the stimulus signal generator generates said electrical stimulus signals including electrical stimulus signals having a gradually increasing stimulus rate.
19. (Previously Presented) The audiometric apparatus of Claim 15, wherein the stimulus signal generator generates said electrical stimulus signals including electrical stimulus signals having a gradually decreasing stimulus rate and a gradually increasing time between stimuli.

20. (Previously Presented) The audiometric apparatus of Claim 15, wherein the stimulus signal generator generates said electrical stimulus signals having true random stimuli frequencies, and said signal conditioning circuit or said computer is operative to provide true random sampling frequencies.

21. (Previously Presented) The audiometric apparatus of claim 1, the stimulus generating means comprising means for generating a broad band noise proportionate in value to the temperature of the means for generating a broad band noise.

22. (Previously Presented) The audiometric apparatus of claim 6, the stimulus generating means comprising means for generating a broad band noise proportionate in value to the temperature of the means for generating a broad band noise.

23. (Previously Presented) The audiometric apparatus of claim 15, wherein:
said second sound wave is received during a sampling point; and the computer comprises:

 a synchronous clock operative to apportion to response electrical signal in a buffer;

 an asynchronous clock operative to determine the sampling point.